



PHILIP MORRIS

EUROPE MIDDLE EAST AFRICA

RESEARCH AND DEVELOPMENT

Handwritten notes:
2 FYI
C. [unclear]
[unclear]
[unclear]
7/1/80
(F)

Monthly Progress Reports

Strictly Confidential

MAY 1980

Distribution:

A	Messrs. H. Maxwell (2) R.W. Murray J. Gibson G. Karandjoulis P. Stolt H. Böckle J.B. Boder J.M. Villard	A	W. Fink H. Friedrich H. Gaisch M. Häusermann C. Jeanneret J. Mandiratta D. Schulthess U. Nyffeler
B	H. Brugger D.R. Gatland J.W. Osborne H. Schildwächter E. Stoop D. Zelkowitz	B	H. Fauville P. Francis A. Read W. Tessororf G. Voelkl E. Grossen
C	W.G. Lloyd T.S. Osdene F.E. Resnik R.B. Seligman	C	H. Wakeham L.F. Meyer W.F. Gannon W.A. Farone
D	W. Grünbaum	E	R. Suter

0000143492

List of projects covered.

- 1 Product Research
- 2 Analytical Investigations
- 3 Agricultural Chemicals
- 4 Biotechnology
- 5 Contract Research
- 6 Special Events
- 7 Nitrate Reduction
- 8 Pilot Plant
- 9 Unit Operations
- 10 Reconstituted Tobacco
- 11 Primary Operations
- 12 Special Projects
- 13 Cigarette Development
- 14 Flavour Development
- 15 Tobacco Analysis
- 16 Cigarette and Smoke Analysis
- 17 Additives and Analytical Services
- 18 Materials Development
- 19 Specifications
- 20 Physical Testing Methods
- 21 Legislation
- 22 Patents

Key to distribution:

- A Complete Report
- B All except Research Report
- C All except Contract Research and those reports which might interfere with patent considerations
- D 12, 17, 18, 19, 20, 21
- E 13, 17, 18, 19, 20.

0000143493

Table of contents

Page	Title	Author
1	1 Product Research	Y. Genoud
2	Product Research	J. Bourquin
6	2 Analytical Investigations	F. Moser
8	Analytical Investigations	E. Lecoultre
10	3 Agricultural Chemicals	M. Speck
11	4 Biotechnology	D. Schulthess
13	Project Spotless	F. Moser
15	Project Protagoras	D. Schulthess
17	7 Nitrate Reduction	C. Ruf
20	8 Pilot Plant	C. Ruf
21	9 Unit Operations I	P. Karbacher
23	Unit Operations II	N. Lüthi
25	10 Reconstituted Tobacco	A. Robbiani
27	PME Cigarette Data Bank	R. Toimil
29	New Material Development	B. Krasna
31	13 Cigarette Development	P. Nagel
34	Cigarette Development	J.H. DuBois
36	Product Development Laboratory	S. Béguin
37	15 Tobacco Analysis	L. Jöseph
42	16 Cigarette and Smoke Analysis	F. Senehi
48	17 Additives and Analytical Services	A. Widmer
53	18 Materials Development	P. Balliger
55	19 Specifications	C. Flury, T. Bel
59	20 Physical Testing Methods	T. Piko
61	22 Patents	J.C. Mandiratta

0000143494

PME RESEARCH LABORATORY, MAY 1980

PROJECT TITLE : PRODUCT RESEARCH
PERIOD COVERED : MAY 1980
WRITTEN BY : Y. GENOUD

TRiacETIN ANALYSIS BY (GC)²

With regard to the increasing number of triacetin analyses requested (1) and to meet the requirements to analyze impurities and chemically modified "triacetin moieties" in triacetin not detectable by the normal GC method applied for triacetin determinations (2), a procedure to analyze triacetin in CA filter and in mainstream smoke by (GC)² has been set up.

Extraction procedure for triacetin: according to PME method No. 120 (2).

(GC)² conditions: fused silica capillary column (12 m x 0.2 mm) coated with SP 2100. Oven temperature 140° C (isotherm), injection port temperature 250° C, detector temperature 300° C (FID). Split injection (split ratio 1/60), (GC)² analysis time/sample 3.2 min.

Triacetin and triacetin impurities glycerol-propionate-diacetate (isomers) have been analyzed in the CA filters and in the mainstream smoke of 10 experimental cigarettes prepared according to MLF specification (1).

REFERENCES

- (1) E. Lecoultre, PME Monthly Progress Report, May 1980
- (2) A. Widmer, PME Method No. 120, 1978

Y. Genoud

0000143495

PROJECT TITLE : PRODUCT RESEARCH
PERIOD COVERED : MAY 1980
WRITTEN BY : J. BOURQUIN

TEMPERATURE MEASUREMENT IN THE MEAINSTREM SMOKE OF CIGARETTES

At the request of PM-Munich (1), the mainstream smoke temperature of two cigarettes, MARLBORO KS and PM MULTI 100 (Munich) was measured in order to ascertain an eventual difference between these two brands.

The cigarettes were smoked on a twenty port rotary machine RM 20/CS. A Chromal-Alumel thermocouple, made of wires of 0.2 mm diameter, was placed in the machine head so that it layed 5 mm behind the cigarette tip. A second thermocouple was maintained as a reference at room temperature. The thermocouple voltage was recorded during the whole smoking process (i.e. Δt : the difference between smoke and ambiant temperature). Each brand was smoked twice, and the puffs were drawn until the tipping paper was reached.

The results of the experiments are given in Table I where each value of temperature represents the mean of twenty puffs, with its relative standard deviation. The values are reported graphically in Fig. 1.

The two sets of values of MARLBORO KS were reported individually, because a slight difference in the puff count (about half a puff) has fortunately allowed to refine the measuring in the interesting zone of rising temperature. The values for the PM MULTI 100 represent the average of the two smoking runs.

Table I : Mainstream Smoke Temperature of MARLBORO KS
and PM MULTI 100 (Munich)

Puff No.	MARLBORO KS				PM MULTI 100					
	a)		b)		a)		b)		average	
	Δt °C	S	Δt	S	Δt	S	Δt	S	Δt	S
1	0.9	0.1	0.8	0.3	0.3	0.2	0.3	0.3	0.3	0.2
2	0.8	0.1	0.9	0.1	0.8	0.1	0.8	0.2	0.8	0.2
3	1.1	0.1	1.2	0.1	1.1	0.1	1.1	0.1	1.1	0.1
4	1.3	0.1	1.3	0.1	1.3	0.1	1.3	0.1	1.3	0.1
5	1.7	0.1	1.7	0.1	1.5	0.1	1.5	0.1	1.5	0.1
6	2.2	0.2	2.2	0.2	1.7	0.2	1.7	0.1	1.7	0.1
7	3.4	0.6	3.3	0.5	1.9	0.2	1.9	0.1	1.9	0.1
8	16.0	10.3	7.4	2.0	2.4	0.2	2.3	0.2	2.4	0.2
9	44.2	4.9	38.6	4.5	3.8	0.5	3.6	0.6	3.7	0.6
10	--	--	46.2	3.1	11.4	4.6	12.4	5.2	11.9	4.9
11	--	--	--	--	43.3	5.9	41.5	7.1	42.4	6.5

CONCLUSION:

- The temperature of the mainstream smoke is practically constant during the 7 (for Marlboro KS) and 8 (for PM-Multi) first puffs, and is only slightly higher than the ambient temperature (less than 4° C).
- As the burning zone comes near the filter, the temperature rises, and the difference between the two brands becomes significant, reaching the maximum value of 27° C at about 6 mm from the tipping paper, i.e. during the last "standard" puff.

REFERENCE

- (1) Verbal request of Mr. Föckler, PM Munich, to M. Häusermann of May 1980.

J. Bourquin

0000143498

0000143499

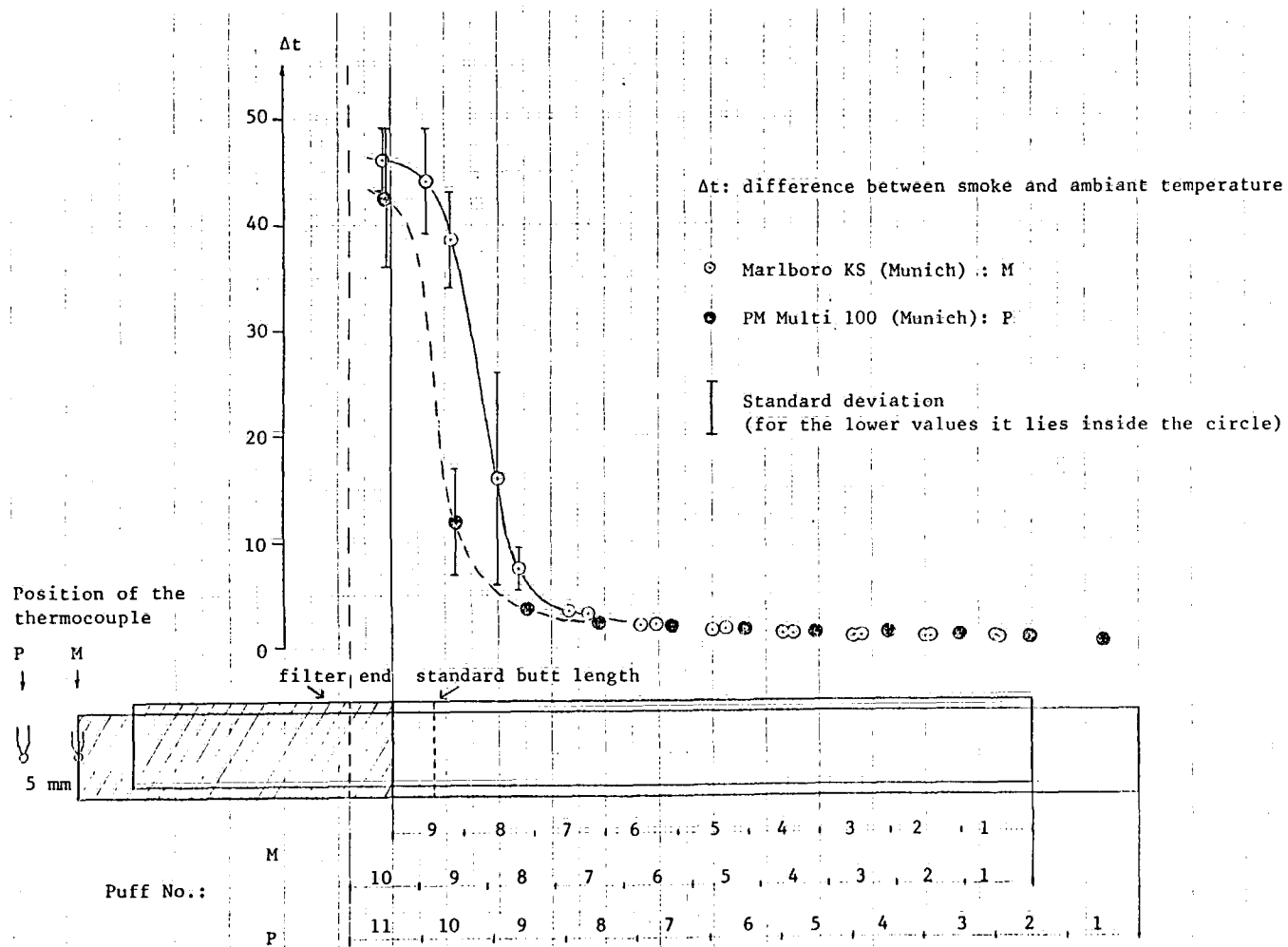


Fig. 1.: Smoke temperature as a function of the burning zone position.

PROJECT TITLE : ANALYTICAL INVESTIGATIONS
PERIOD COVERED : APRIL 29 - MAY 23, 1980
WRITTEN BY : F. MOSER

N-NITROSAMINES

- The determination of volatile (DMN/NPY) and non-volatile (NNN/NNK/NAtB) nitrosamines in prototype cigarettes of project SPOTLESS (1) has been started.
- At the request of PM Richmond (2), NNN and NNK in mainstream smoke of nine experimental cigarettes were determined. The results have been submitted to PM Richmond (3).
- Removal of volatile nitrosamines from cigarette mainstream smoke:
The possibility to reduce the amount of DMN and NPY in MS of an experimental cigarette by CA filter (18 mm) and by variation of the concentration of the filter additive triacetin has been investigated (4). Results of the first part of these investigations are summarized in the table.

	<u>non-filter cigarette</u>	<u>cigarette with CA filter (18 mm)</u>				
Triacetin	-	0 %	3 %	5 %	7 %	>10 %
DMN (ng/c) *)	9.6	2.4	2.0	1.8	1.4	1.7
Reduction (%)		75	79	81	85	84
NPY (ng/c) *)	10.3	4.3	4.8	n.d.	4.5	3.7
Reduction (%)		58	53	n.d.	56	64

*) Mean values of 5 determinations.
n.d. = not determined

1. 75 % of DMN and 58 % of NPY are retained by a triacetin-free CA filter, length 18 mm.
2. The amount of DMN in MS can be further reduced by increasing amounts of triacetin on the CA filter ("solvent effect"). A maximum of 10 % DMN is retained by 7 % of triacetin. The concentration of NPY in MS is not reduced by triacetin.
3. Triacetin concentrations higher than 7 % give no further reduction of DMN.

Complete removal of DMN from MS can possibly be achieved by variation of CA filter length and triacetin concentrations. The removal of NPY by modification of triacetin as well as the reduction of NNN, NNK and NATB concentrations by CA filter/triacetin is presently under investigation.

SERVICE FOR OTHER GROUPS

- The SH-index of nine experimental cigarettes from PM Richmond (2), eight cigarette brands (UK) and of two tobacco lots (TLA) were determined.
- 41 NINO extracts and four tobacco samples were analyzed for potassium, calcium and magnesium by atomic absorption.

REFERENCES

- (1) F. Moser, PME Monthly Progress Report, April 1980
- (2) Memo of R.D. Carpenter to W. Fink, dated April 29, 1980
- (3) Memo of W. Fink to R.D. Carpenter, Dated June 12, 1980
- (4) F. Moser, PME Monthly Progress Report, p. 2, April 1980

F. Moser

- 7 -

0000143501

PME RESEARCH LABORATORY, MAY 1980

PROJECT TITLE : ANALYTICAL INVESTIGATIONS
PERIOD COVERED : APRIL 29 - MAY 28, 1980
WRITTEN BY : E. LECOULTRE

AMINO ACID ANALYSIS

- Free and protein-bound amino acids were quantitatively analyzed in tobacco of nine experimental cigarettes submitted by PM Richmond (1). Protein-bound amino acids were determined after acidic hydrolysis (6N HCl/110° C/48 h), free amino acids after extraction of tobacco with an alcohol/water 80:20 mixture for 12 hours at room temperature (2).
- Amino acids were analyzed in 80 probes submitted by Product Research.

TRIACETIN ESTROBOND B (3)

Work has been continued by preparing two MLF with 1.1 % and 1.35 % glycerol-propionate-diacetate additive (covering now the range of concentrations 0.8, 1.1, 1.35 and 1.9 %) and testing them against Swiss MLF in panel B (4).

Due to the fact that the results obtained by the two panel tests (5) turned out to be contradictory, the cigarettes tested were sent to QC and to Product Research to check the triacetin concentrations in the CA filters.

MISCELLANEOUS

Phosphate (197 analyses), sulfate (150) and alcohols (44) were determined in various samples submitted by Biotechnology and Process Development.

0000143502

REFERENCES

- (1) Memo of R.D. Carpenter to W. Fink, dated April 29, 1980
- (2) N. Carugno et al., Beitr. Tabakforsch. 7, 222 (1974)
- (3) Compare E. Lecoultre, PME Monthly Progress Report, April 1980
- (4) Test de degustation No. 159, May 19, 1980
- (5) Test de degustation No. N-76, April 21, 1980

E. Lecoultre

0000143503

PME RESEARCH LABORATORY, MAY 1980

PROJECT TITLE : AGRICULTURAL CHEMICALS
PERIOD COVERED : MAY 1980
WRITTEN BY : M. SPECK

ROUTINE ANALYSES

Number of tobacco samples analyzed for pesticide residues in May:

Organochlorines	44
Organophosphorus	44
Organophosphorus + Methamidophos	32
Dithiocarbamate	38
Maleic Hydrazide	32
Ridomil	32

M. Speck

0000143504

PROJECT TITLE : BIOTECHNOLOGY
PERIOD COVERED : MAY 1 - 31, 1980
WRITTEN BY : D. SCHULTHESS

1. LACTIC ACID CONSUMPTION (1)

It has been shown in the laboratory that the amount of lactic acid used in the denitration process highly depends on the pH of the system (2). The lactic acid is, however, not used up totally by the yeasts. The following amounts were found in the denitrated extracts:

pH of the denitration	lactic acid in denitrated extracts mg/l	% lactic acid metabolised by yeasts
4	9523	78.8
5.5	8837	74.4
6.3	6580	77.8
6.8	8652	62.6
7.0	6433	49.3

The data show that lactic acid is used up by 75 % as long as the pH of the denitration lies between 4 and 6.5, i.e. pH values that are known to be optimal for yeast metabolism and growth. At higher pH values, less lactic acid is used and denitration still functions in spite of the fact that the conditions are suboptimal.

Trials in the pilot plant (500 l fermenter) gave quite different results. The overall consumption of lactic acid was about the same, but only 2000 mg/l lactic acid was found in the denitrated extract. This difference may be due to scaling up or the fact that in the 500 l fermenter a mixture of 90 % lactic acid and 10 % phosphoric acid was used to maintain the pH.

2. CITRIC ACID CONSUMPTION (3)

When citric acid was used instead of lactic acid for pH control of the denitration process, a similar correlation between the pH of the system and the consumption of citric acid was found. For every liter of extract (standard RL stem blend extracted 1:10 with water) containing 5 g/l NO_3^- and 0.2 % KH_2PO_4 , the following amount of citric acid (90 %) was consumed:

pH of the denitration	consumption of citric acid g/l
5.5	33.3
6.5	25.2
7.2	9.4

The residual amounts of citric acid in denitrated extracts have not yet been determined.

3. MISCELLANEOUS

- Assistance has been given to the pilot plant for the ongoing trials.
- Media for tissue cultures have been prepared.

REFERENCES

- (1) J. Berney, Notebook 128, 46-50
- (2) D. Schulthess, Monthly Report Biotechnology, April 1980
- (3) M. F. Mangilli, Notebook 791205, 41-44

D. Schulthess

0000143506

PROJECT TITLE : SPOTLESS
PERIOD COVERED : MAY 1980
WRITTEN BY : F. MOSER

OBJECTIVE

To produce prototype cigarettes which are entirely denitrated.

To study the smoke chemistry and the smoke quality of these cigarettes.

PRESENT STATE

All sixteen prototype cigarettes are made. The evaluation programme (TLA) has been started.

CODE SYSTEM

First sign : Ø (zero) for the year 1980
A : for aircured type (red label)
B : for blend type (black label)
SPO : for denitrated

1	ØS-A-TOT	} red label	TLA available
2	ØS-A-TOT/SPO		TLA under way
3	ØS-A-MD		TLA available
4	ØS-A-CH		TLA available
5	ØS-A-MD/SPO		TLA under way
6	ØS-A-CH/SPO		TLA under way
7	ØS-A/SPO/SPO		TLA under way

1	ØS-B-TOT		TLA available
2	ØS-B-TOT/SPO		TLA under way
3	ØS-B-FC		TLA available
4	ØS-B-BU		TLA available
5	ØS-B-OR	black label	TLA available
6	ØS-B-FC/SPO		TLA under way
7	ØS-B-BU/SPO		TLA under way
8	ØS-B-OR/SPO		TLA under way
9	ØS/SPO/SPO/SPO		TLA under way

F. Moser
F. Moser

0000143508

PROJECT TITLE : PROTAGORAS
PERIOD COVERED : MAY 1 - 31, 1980
WRITTEN BY : D. SCHULTHESS

The aim of the project is the determination of the influences proteins of tobacco have on the smoke composition, on smoke condensate and on cigarette subjectives. Our present problems are the extraction of proteins from tobacco and the preparation of re-constituted tobacco sheets.

PROTEIN EXTRACTION FORM TOBACCO DUST (1)

The extraction of proteins from tobacco with only mechanical means (homogenization) showed to be impossible (2). In order to bring tobacco proteins into solution, extractions were carried out in presence of proteolytic enzymes. Thus, 100 g of tobacco dust (containing 13.1 % protein) were combined with 500 ml water and the pH was adjusted to 7.0 (2.0 in case of pepsin). After the addition of 200 mg of a proteolytic enzyme, the mixture was shaken during six hours at 37° C. After centrifugation the following percentages of tobacco proteins were found in the extract:

Proteolytic enzyme	% proteins extracted .	final pH
Trypsin	28.4	7.2
Pepsin	40.8	2.0
Alcalase (Novo)	31.6	6.9
Protease (Calbiochem)	45.7	7.1

An increase of the extraction time from 6 to 24 hours did not increase the percentage of proteins extracted.

A subsequent treatment of tobacco dust with pepsin, followed by trypsin increased the protein extraction to 44 %.

PROTEIN EXTRACTION FROM BURLEY STRIPS (3)

Similar extractions using whole Burley strips and the protolytic enzyme trypsin did not give any positive results yet.

SHEET EVALUATION (4)

Tests were carried out to reconstitute the partially deproteinated tobacco dust. A method using carboxymethylcellulose (CMC) has proven to be feasible (5).

FUTURE WORK

The enzyme treatment of tobacco dust and other tobacco material will be optimized. Trials to eliminate proteins from the extracts will start.

CMC-sheets will be prepared using untreated and deproteinated tobacco material.

REFERENCES

- (1) A. Hänggi, Notebook 791203, 1-5
- (2) D. Schulthess, Monthly Report Protagoras, April 1980
- (3) M.F. Mangilli, Notebook 791205, 36/37
- (4) A. Hänggi, Notebook 791203, 6-8
- (5) Jansson, R. and Lilja, L., Auslegeschrift 1517240, Federal Republic of Germany, 1970

Schulthess
D. Schulthess

PROJECT TITLE : Nitrate Reduction by Controlled Fermentation
PERIOD COVERED : May 1st - 23rd, 1980
WRITTEN BY : C. Ruf

1. TRIALS

1.1. Trial NINO 57

The trial NINO 57 has been running continuously for 6 weeks although a shorter period was planned. It has been extended for several weeks due to problems with the flow measurements and the centrifuge. Because of these difficulties we did not get all the figures we need for the mass balances. However some data have already been obtained and will be confirmed in the next two weeks. We will soon be able to get a more precise balance around the fermentation by using a gas analyzer.

Experiments made in the microbiology laboratory show a lower acid consumption by increasing the pH of the extract in the fermenter (Ref. 1). Therefore we now adjust the pH at 6 instead of 5. The acid consumption comparison will be available next month.

The feedstock of lot number 7999, representing the stem part of a European RL blend, was finished on May 6th. Since then we use a new lot number, 7210, with the same composition, 55.3% FC stems and 44.7% Burley stems.

1.2. Trial NINO 58

It has been shown that the difficulties encountered with the denitration of strips extract are due to the presence of ammonium ions which inhibit the reduction of nitrates (Ref. 1). The goal of the trial NINO 58, which ran in the 20 l fermenter from 1st to 3rd May, was to reach a total denitration of a Burley strips extract by :

- 1) extraction at low temperature, 12°C, to avoid a decomposition of N-containing constituents into ammonium ions.
- 2) addition of a higher amount of sugar proportional to NO₃-N and NH₃-N concentration.

A total denitration was achieved at the end of the batch and during the first period of the continuous run.

The appendix 1 shows the simultaneous reduction of ammonium and

nitrate-nitrogen, the consumption of reducing sugars (RS) and the growth of the micro-organisms during the batch. After 24 hours we reduced the amount of sugar to the level corresponding to the $\text{NO}_2\text{-N}$ concentration only. A few hours later a residual amount of nitrate was found. But unfortunately there was not enough extract and we had to stop the trial, which will be repeated.

2. NINO SCALE-UP

Mr. Frei from Chemap visited Neuchâtel on May 8th to discuss the engineering study. The basic data were confirmed to him by letter (Ref. 2).

3. PILOT PLANT

See monthly report of May 1980 : "Pilot Plant Operations" by C. Ruf.

4. NITRATE REDUCTION OF STRIPS

A rotocell extractor has been ordered from Pruess Anlagentechnik. The renting time of the Ex-Technik extractor will be extended for one or two weeks.

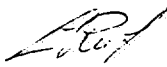
5. NINOMASS

The rented dryer from Aeromatic has been installed in the pilot plant.
See also monthly report : "Unit Operations I" May 1980, by P. Karbacher.

6. REFERENCES

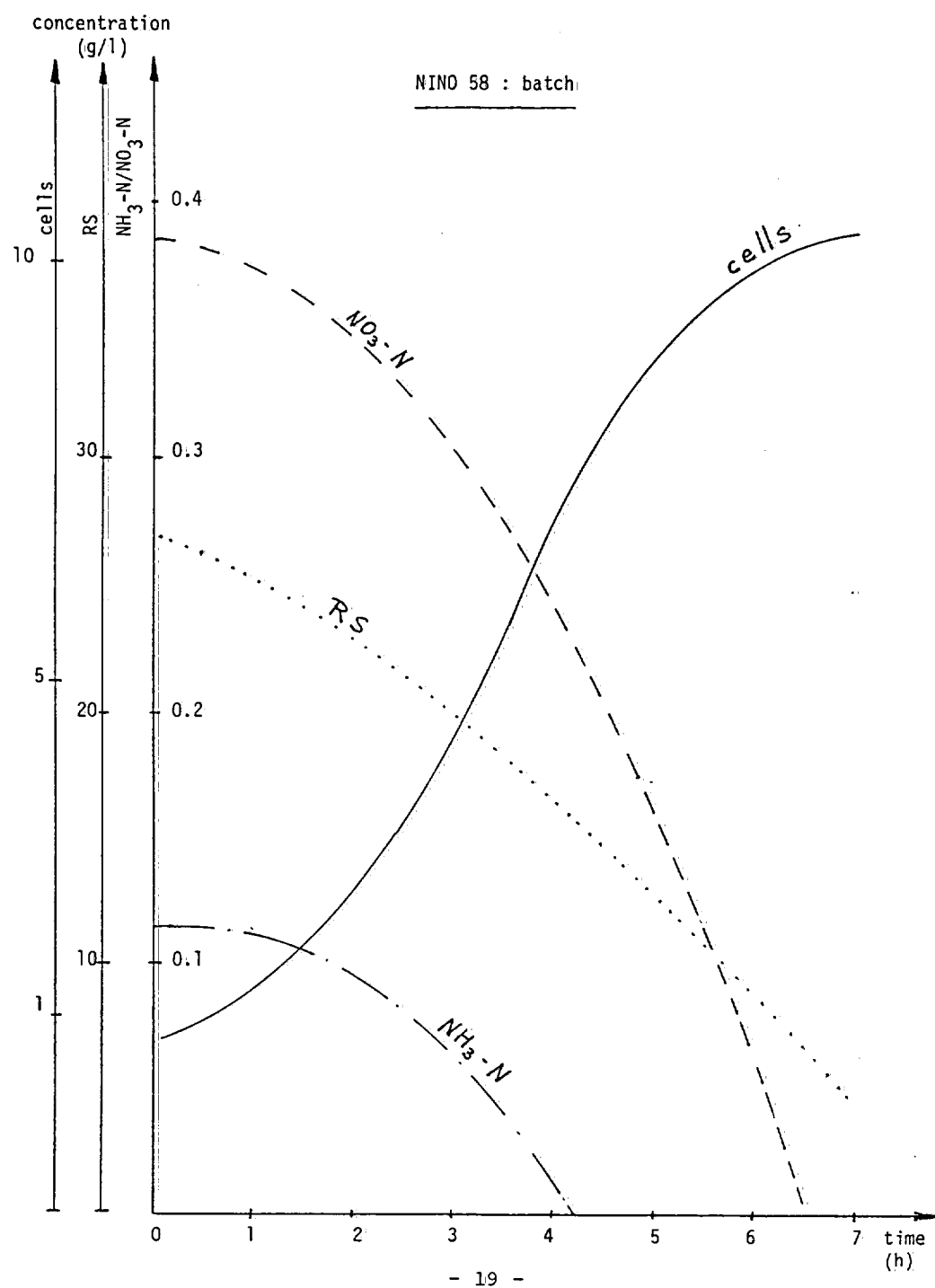
Ref 1 : Monthly Report : "Biotechnology", April 1980, D.Schulthess
Ref 2 : Letter from H. Friedrich to Mr. Frei, Chemap, May 19th, 1980.

PROCESS DEVELOPMENT


C. Ruf

May 28th, 1980
CLR/sde

Appendix 1



0000143513

PROJECT TITLE : Pilot Plant Operations

PERIOD COVERED : May 1st - 23rd, 1980

WRITTEN BY : C. Ruf

1. EQUIPMENT

1.1. Extraction

A new electrical heating system has been installed around the V-shape extractor.

1.2. Dryer

The high temperature of the gas flames caused a hole in the jacket of the dryer. It was summarily repaired but the dryer needs to be overhauled soon.

1.3. Fermenter

An analyzer is being installed to measure CO_2 and O_2 in the exhaust gas.

1.4. Centrifuge

The spare motor which was ordered on April 24th did not leave Sweden because of strikes. Therefore we have rented a whole centrifuge from Alfa-Laval until we get the motor.

1.5. Control

The extract flowmeter before the mixing vessel does not work properly due to the fouling of the tube and the float. The operators now check the flow-rate once a shift.

2. LABORATORY

2.1. A second lab technician has been found within R + D and will be transferred as soon as possible.

2.2. The borrowed turbidity meter from Ruegg has been purchased.

PROCESS DEVELOPMENT


C. Ruf

May 28th, 1980
CLR/sde

- 20 -

0000143514

PROJECT TITLE : Unit Operations I
PERIOD COVERED : April 29th - May 23rd, 1980
WRITTEN BY : P. Karbacher

NINOMASS

The rented Aeromatic fluidized bed dryer arrived on May 20th and was started up.

We received the price offer for dried NINOMASS from VLGZ, Sursee. At the moment VLGZ is willing to pay SFr. 75.- per 100 kg of dried NINOMASS. This is an acceptable price. The price for dried yeast depends on the fluctuations of the world market for animal feed. Soya and fish-powder are in direct competition with dried yeast.

RL-HANDSHEET MAKING UNIT (Ref. 1)

On May 6th a RL handsheet trial was carried out in the development lab of the paper-mill Biberist.

Extracted European RL feedstock was refined in an experimental, valley-type beater.

The residence time of the material in the valley beater was varied and samples were taken at different times to determine the degree of refining according to the Schopper-Riegler method. A Schopper-riegler "Freeness" tester was used for these tests.

The handsheets were made on a Williams sheet mould.

Figure 1 shows the effect of the milling time on the degree of refining.

The handsheets were given to the lab for different analyses.

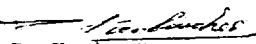
MISCELLANEOUS

Help was given to Mr. Lüthi for dust sieving trials and to Mr. Robbiani for Monique/RCB trials.

REFERENCES

Ref. 1 : Notebook IV, KPA, pages 11 - 13.

PROCESS DEVELOPMENT


P. Karbacher

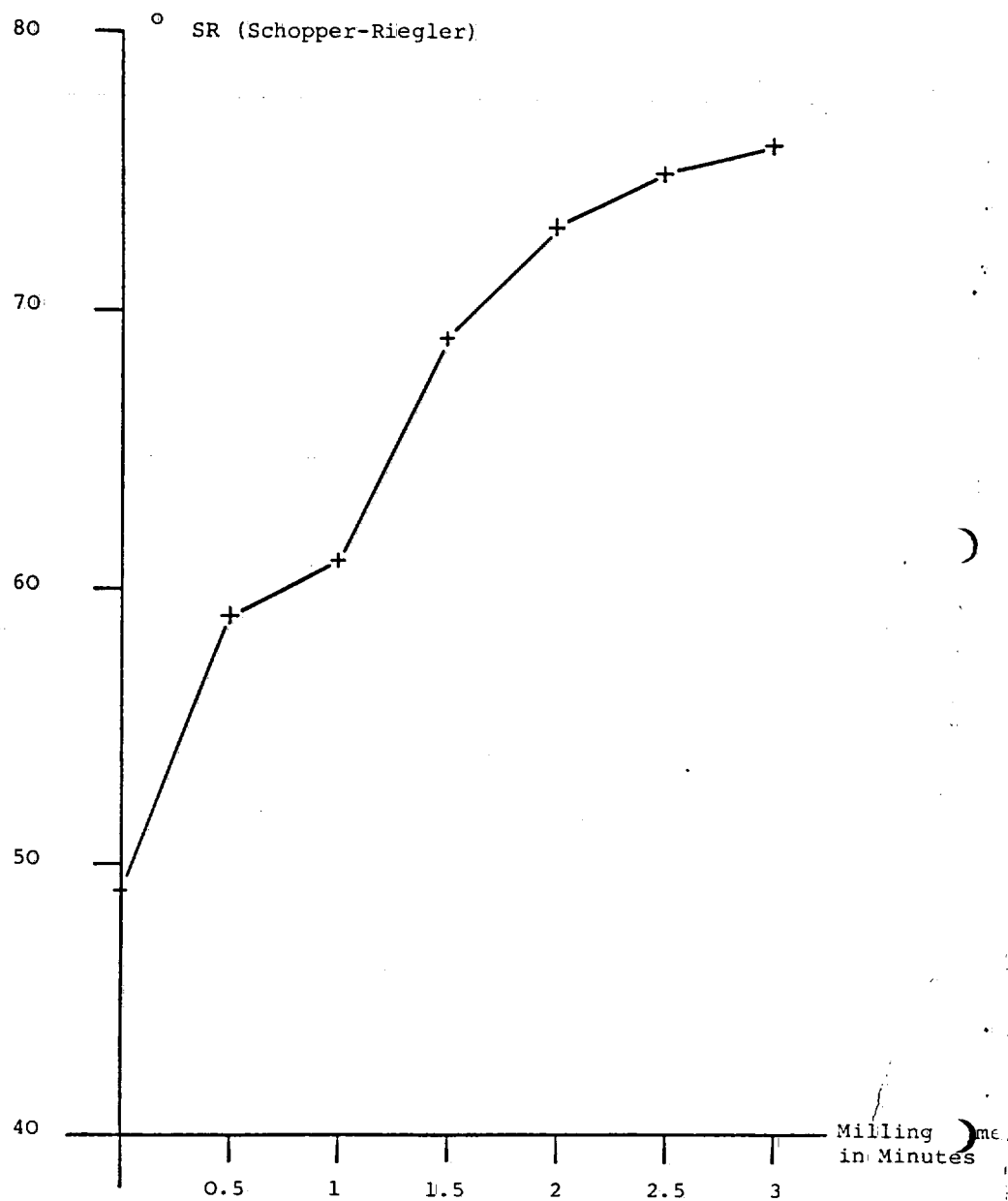
May 28th, 1980
KPA/sde

- 21 -

0000143515

FIGURE 1

EFFECT OF MILLING TIME ON DEGREE OF REFINING



PROJECT TITLE : Unit Operations II
PERIOD COVERED : May 1st - 23rd, 1980
WRITTEN BY : N. Lüthi

STRIPS EXTRACTION

The problems encountered with the strips extract fermentation were reported last month (Ref. 1). Subsequently an extraction trial was carried out at low feedwater temperature. The objective was to decrease the ammonia-nitrogen content and to increase the nitrate-nitrogen content of the extract.

Trial conditions :

Feedwater temperature	12°C
Extraction time	40 min
Input strips	16 kg/h
Input water	180 l/h

At these conditions we obtained the following extraction grades :

for NO ₃ -N	=	79%
NH ₃ -N	=	48%
HWS	=	not yet available

The analyses of the extract showed the following values :

for NO ₃ -N	=	0.40 g/l
NH ₃ -N	=	0.11 g/l
TS	=	0.96%

This extract was used for a fermentation trial in the 20 l fermenter, NINO trial 58, (Ref. 2).

As the extraction grade for nitrate-nitrogen was unexpectedly high this trial will be repeated.

The decision to purchase a Pruess rotocell extractor was made. This type of extractor has hinged bottom plates in each compartment. Therefore the tobacco is not scraped along a stationary bottom plate and less attrition of the feedstock material is expected.

DUST SIEVING FOR MONIQUE/RCB

According to information received from Mr. Balmer, the LTR coordinator, Le Mans might be able to accept dust from FTR with smaller particle size than used at present. (< 80 mesh). Therefore a dust sieving trial was carried out in Onnens using 140 mesh screens (Ref. 3).

About 2140 kg of dust were sieved. The following distribution was observed :

> 140 mesh	1700 kg	$\hat{=}$	79.4%
< 140 mesh	440 kg	$\hat{=}$	20.6%

Different Monique/RCB trials were carried out parallel to the sieving trial using the fraction > 140 mesh as dust component (Ref. 4).

The following samples were given to Mr. Balmer for examination by LTR.

Sample 1	:	dust > 140 mesh
2	:	dust < 140 mesh
3	:	dust < 80 > 100 mesh *

* used at present for current Monique/RCB production.

REFERENCES

- Ref.1 : Monthly Report, April 1980, Biotechnology, D. Schulthess.
Ref.2 : Monthly Report, May 1980, Nitrate Reduction by Controlled Fermentation, C. Ruf.
Ref.3 : Report on the dust sieving trial in Onnens. "Essai de tamisage effectué le 12 et le 13 mai 1980", May 21st, 19 N. Lüthi.
Ref.4 : Monthly Report, May 1980, Reconstituted Tobacco II, A. Robbiani.

PROCESS DEVELOPMENT

N. Lüthi
N. Lüthi

May 28th, 1980
NIL/sde

PROJECT TITLE : Reconstituted Tobacco
PERIOD COVERED : April 24th - May 21st, 1980
WRITTEN BY : A. Robbiani

MONIQUE/RCB

Roll coater, rubber roll

The sheet showed not uniform slurry distribution.
Every 7 cm regular stripes with more material were observed and it was decided to change the rubber roll.
The replacement of the roll did not improve the appearance of the sheet.
Subsequently the driving system was checked but nothing was found.
It seems that the surface of the roll is not perfectly round.
The workshop which replaced the rubber was contacted.

Roll coater, steel roll

The front steel roll was changed as its surface showed deterioration.
A local workshop in Yverdon was contacted for the repair.

Trials

A report from Richmond comparing US/RCB with Monique/RCB was received and discussed (Ref. 1).
According to this report the Monique sheet has been using some additives at higher levels than US/RCB. Monique/RCB also uses dust with a smaller particle size.
For both reasons the CV data of US/RCB were substantially higher.
These trials were carried out on May 12th and 13th using dust with a different particle size (Ref. 2).
The additive formulas for these trials were as follows :

Trial 1, lot No. 120
American additive formula according to the report.

Trial 2, lot No. 121
FTR additive formula as currently used.

Trial 3, lot No. 122
FTR additive formula, 20% reduced.

Cigarettes from these trials at the 100% level will be submitted for subjectives.
The tobacco lot analyses are under way.

Reduced additive formula

A Monique/RCB trial, lot No. 118, was carried out in April with 20% less additives. 100% cigarettes of this Monique/RCB were panel tested against 100% cigarettes of the current production sheet.

The trial cigarettes were found to be much better in taste and also the combustion was judged to be improved (Ref. 3).

It was decided to use the reduced additive formula as of May 21st in production (Ref. 4).

APPLICATION OF NINO-PRODUCTS IN MONIQUE/RCB

Trial NINO/RCB No. 7 (Ref. 5)

Panel B tested cigarettes containing Monique/RCB lot No. 116 at 3.4% level.

The test cigarettes showed a difference in taste against the control and were not accepted.

As only 5% of the feedstock were replaced by NINO washed stems and the corresponding fermented extract we believe that the taste difference could have been caused by something else. The trial will be repeated.

Q.C. ONNENS

Personnel

A lab technician was hired.

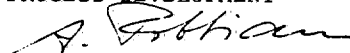
Lab

The new lab has been partially installed.

REFERENCES

- Ref. 1 : Letter to G. Gellatly from S.G. Muller, Comparison of FTR vs. U.S. RCB, April 3, 1980.
- Ref. 2 : Report "Essai de tamisage effectué le 12 et 13 mai 1980", May 21st, 1980, N. Lüthi.
- Ref. 3 : Memo to H. Friedrich from P. Karle, Project Monique Lot 113 and Trial Lot 118, May 19, 1980.
- Ref. 4 : Memo to J.-P. Caccivio from H. Friedrich, Formule d'additifs pour Monique/RCB, May 20th, 1980.
- Ref. 5 : Monthly report, April 1980, Reconstituted Tobacco II, A. Robbiani.

PROCESS DEVELOPMENT



A. Robbiani

June 2nd, 1980/ARO/sde

- 26 -

0000143520

PROJECT TITLE : PME Cigarette Data Bank and
Related Procedures

PERIOD COVERED : April - May, 1980

WRITTEN BY : R. Toimil

PME Cigarette Data Bank

The different screens which will allow the utilization of the PME Cigarette Data Bank index-cards were created. The project leaders and the Development Support Office were informed in the last Product Development meeting at the beginning of May. The proposals discussed during this meeting will be included in the specifications to be submitted to EDP by June, 1980.

On May 28th, information on the screens was given to the persons responsible of the Specifications Office. This in order to get the best coordination of the two computer applications: Cigarette Data Bank and Specifications.

EDP cannot begin to work on the development of the input recording programs before Fall 1980.

The procedure for numbering and manufacturing filters for trials is ready and has been submitted to the project leaders and the head of the laboratory during the last New Product Development meeting.

The procedure to order direct materials (cigarette and tipping paper, plug wrap and filter material) was submitted to Mr. U. Nyffeler and Ms. B. Krasna.

The procedure to manufacture pilot cigarettes is ready thanks to the help provided by Ms. L. Joseph and Mr. S. Terrapon. This procedure will be submitted to Mr. U. Nyffeler for approval on the first week of June.

APL

ERZ (Elektronische Rechenzentrum, PTT) sent us a new version of the ERIDANUS programmes (plotting programmes). This new version allows us to call through different units only the functions necessary for a graphic work without taking too much of the working space reserved to each operator.

APL training

Assistance was given to Ms. L. Joseph to create a programme to help complete the output of the REGRESSION1 programmes (1).

Toimil

R. Toimil

Reference:

- (1) Monthly Report of January 1980.

June 4, 1980
RAT/noh

0000143522

PROJECT TITLE : New Material Development
PERIOD COVERED : May 1st - 30th, 1980
WRITTEN BY : B. Krasna

1. Tipping paper

1.1 Modified tipping paper, Benkert Z4/100

PM Munich is going to repeat the production of Merit cigarettes for Italy with the modified Z4/100. They will also produce cigarettes with a modified Z4/90 paper. One bobbin of this Z4/90 paper will be sent to Neuchâtel, as well as cigarettes for smoke analysis.

1.2 Micromechanically perforated tipping

Physical tests were carried out on the 5 bobbins received from Ecusta. We will now attempt to match these tipping papers to similar papers currently used in FTR.

1.3 Hauni electro-perforation on MAX-S

Of the 8 types of cigarettes produced during the first trial (Ref. 1), only 3 had the correct dilution. The largest holes were used for the perforation of these 3 types of cigarettes. In order to provide a larger selection for the taste evaluation, another trial was carried out on May 8th, 1980 (Ref. 2). In the end, 7 types of cigarettes were sent to Lausanne on May 13th (Ref. 3). We are still awaiting the results of the taste evaluation.

2. Cigarette paper

2.1 New raw materials

The cigarettes produced with the cigarette papers made from bamboo and tobacco stalks have not yet been smoked for taste evaluation.

References:

1. Memo from B. Krasna, April 28, 1980: Essais de perforation électrique sur MAX-S.
2. Memo from B. Krasna, May 8th, 1980: Essais de perforation électrique sur MAX-S.
3. Memo from B. Krasna to Messrs. J. Guyot and A. Zevenhuizen, May 13th, 1980: Electro-perforation sur MAX-S.

B. Krasna

June 3, 1980
BEK/noh

- 30 -

0000143524

PROJECT TITLE : CIGARETTE DEVELOPMENT
TECHNICAL REPORT
WRITTEN BY : P. NAGEL
PERIOD COVERED : April 26th - May 28th 1980

363 DELAWARE Swiss Tar : 3.0
SN : 0.3
Puff count : approx. 7.0
Format : 25/80/7.95

The main development phase is finished.
At present two prototypes (No 10 and No 12) corresponding to the smoke yield and taste objectives are available.
Prototype No 10 is in the direction "Maryland" while prototype No 12 is rather in the direction "Air-Cured" giving some "kick".
The only problem with these two prototypes is the puff count which is too low (6.3 instead of 7.0). New samples were therefore made with a less combustible cigarette paper.
If this attempt will not be successful, the reduction of expanded tobacco in the blend will have to be envisaged.

360 MIAMI Swiss Tar : 14.0
Flavour development

On the basis of prototype 1P (ref. monthly report of March 1980) a flavour development has been carried out.
Some different types of flavours have been tested on this prototype and submitted to a taste evaluation. Two of them have been chosen by the experts and presented to the responsible people of the Swiss Marketing.
The first flavour (MI-AC-2) is in the direction MLF and the other (BA-AC-2) in the direction CAMEL.
These two products will be tested against each other in a future product test.

364 CALIFORNIA

Swiss Tar : 10.0
SN : 0.8

A new series of prototypes has been produced for the development of this project.
Prototype No 6 reached the objectives of smoke yield and taste. Its characteristics are as follows :

<u>Prototype No</u>	6
<u>Blend : type</u>	American blend
ETNA	18 % of ET-1
PC/AC	the same as MAA-CH

Cigarette specifications

Format	20/80/7.95
Cigarette paper	Pela 54
Filter	MAKPC
Tipping paper	3 colours, 4 x Ml 0.15 . 4.5
Tobacco weight 12 % O.V.	700 mg/cig.
Total RTD (Filter)	105 (71) mm WG
Dilution	16 %

Tobacco analyses

Total alkaloids	1.40 %
Nitrate-N	0.19 %

Smoke analyses

Swiss Tar	10.1 mg/cig.
SN	0.78 mg/cig.
CO	10.5 mg/cig.
NO	0.14 mg/cig.
Puff count	8.0

Next step

This cigarette will be submitted to the Swiss Marketing and then product tested.

284 MARYLAND

Swiss Tar : 12.0
Puff count : 8.0 (minimum)

Twenty-five different prototypes have been produced for this project. The following parameters have been changed.

- a) Blend : with/without expanded stems and additional stems.
- b) Filter plasticizer : Estrobond B instead fo Carbowax.
- c) Cigarette paper : Pela 54, Pela 130 S, Pela 200, Pela 200 semi-combustible.
- d) Tipping paper : Benkert Z4/80 instead of Benkert Z3/60.

Following approval by Panel A this candidate was accepted by Swiss Marketing for a product test.

<u>Prototype No</u>	122
<u>Blend</u>	BRD without expanded stems
<u>Supplies</u>	Filter : BRD standard
	Cigarette paper : Pela 200
	semi-combustible
	Tipping : Z3/60

<u>Smoke yield</u>	
Swiss Tar	11.8 mg/cig. .
SN	0.92 mg/cig.
Puff count	8.0
CO	14.0 mg/cig.
NO	0.20 mg/cig.
Dilution	7 %

P. Nagel
P. Nagel

PNE PRODUCT DEVELOPMENT, May 1980

PROJECT TITLE : CIGARETTE DEVELOPMENT
TECHNICAL REPORT
WRITTEN BY : J.-H. DU BOIS
PERIOD COVERED : April 26th - May 23rd 1980

S W E D E N

355 GOSTA I A product delivering 1 mg tar or less. SN and CO values should be commensurately low, but are not specified. Same format as BOND LTN. Cork tipping. American blended type of taste.

Trials were made with the dual filters but the objective of 1 mg was not reached.

The reason is that the lines of perforation fall on the paper segment of the filter and therefore the necessary degree of dilution cannot be achieved.

Further trials will be made with Filtrona filters having a 15 mm acetate and 5 mm paper segmentation.

However, prototype No 9 was found good for GOSTA II project (DPM: 4.7 mg/cig. / Puff count : 6.7).

The puff count is judged too low and will have to be brought up to 7.5.

361 GOSTA II An American blend GAMMA type product delivering 2 and 4 mg tar. Moderate size.

Trials with double filters were made but gave a high DPM for the same reason as GOSTA I.

Trials with a 13/7 mm segmentation for filters and different cigarette papers have been ordered and the results will be known shortly.

Further trials will also be made with Filtrona filters having a 15/5 mm segmentation.

UNITED KINGDOM

208 TENNIS

UK tar less than 16 mg/cig.
Format : 7.975/20/85

Prototypes M4/1, M7/1, M7/2, M7/3 were produced and gave an unduly high tar delivery (approx. 19 mg/cig.). A rapid investigation showed that the blend had been prepared without ES. A serie of prototypes was therefore repeated with addition of ES in the blend. The analytical results are now closer to the 16 mg/cig. tar objective.
A blend repetition will therefore have to be made in order to confirm these analytical results.

FRANCE

362 WATSON

The product test against CAMEL MILD has been repeated and will be dispatched on the last week of May.

ITALY

MERCEDES KS

A trial has been ordered with a cigarette in which the silicagel has been replaced by meerschaum, this at the request of Mr. A.G. Buzzi. Analytical results and taste evaluation are not yet available.
Trials will be made at the next production of MEK.

Jl. Du Bois

Jl.-Hl. Du Bois

PROJECT TITLE : PRODUCT DEVELOPMENT LABORATORY
PERIOD COVERED : April 25th - May 21st 1980
WRITTEN BY : S. BEGUIN

1) CIGARETTE PRODUCED IN THE MANUFACTURING DEPARTMENT

a) Total quantity : 753,000
b) Number of prototypes : 80

2) TOBACCO BLEND TRIALS IN THE PRIMARY DEPARTMENT

a) 6 x 1,000 kg (unflavoured)

3) FILTER RODS PRODUCED IN THE FILTER MAKING DEPARTMENT

a) Total quantity : -----
b) Number of prototypes : -----

4) PACKS (20 cig.) PRODUCED IN THE PACKING DEPARTMENT

a) Total quantity : 21,850
b) Number of projects : 18

5) PRODUCT TESTS PREPARED : 2

S. Béguin.

PROJECT TITLE : Tobacco Analysis
PERIOD COVERED : May 1st - May 30th, 1980
WRITTEN BY : L. Joseph

Tobacco Lot Analyses

1. Special trials

Denitrated LTR (1) (See enclosed table)

The results of the analyses of two samples (lots No. 7198 and 7195) are available.

The principal differences between the denitrated and the standard trials are, for the denitrated sheet:

- lower NO₃-N level, (70% reduction), consequently lower NO delivery
- lower K level (but only 18% reduction)*
- higher CO delivery
- higher SN delivery (at a similar TA level)
- higher DPM delivery
- lower free combustibility of the sheet (52.3% instead of 69.1% for the standard trial)

Basic MLF blend for ATO (2)

The results of the sieve analysis of the basic blend received from Richmond, were sent to Mr. M. Hansen (3).

Six samples of this basic blend taken by Mr. D. Polack (4) were received on May 21st, 1980. The results of the degradation tests are available.

Marlboro and Chesterfield blends for Algeria (5)

The analyses are under way.

Competitor brands

The results of the analyses of these three brands: Select, Select No. 2 and Select Extra Légère are similar with respect to the principal parameters.

* This indicates a need for anion analyses (citrate, etc.).

0000143531

There are, anyhow some small differences to be pointed out on the Select Extra Légère in comparison to the two other brands:

- lower NO3-N level, consequently, smaller NO delivery
- slightly lower CO delivery, TA level and SN delivery
- smaller cylinder volume

Italian tobaccos (6)

Eight samples of FC Italian tobaccos were analysed in order to select growers and varieties.

MD tobaccos, storage influence (7)

We have not yet begun the analyses.

Blending problems with different grades from the same lot

The suppliers harvest and then pack a same lot over a certain period of time. In order to determine if it is necessary to split a lot in smaller parts based on the packaging date, we have analysed four samples of US Burley tobacco from different boxes (from first to fourth quarter of lot 9228). Results are being evaluated.

2. Routine tobacco lot analyses

Introduction of inputs on EDP

Ten lots were introduced in the analytical data list.

Lots under evaluation

Forty-seven lots.

Lots available, but not yet analysed

Thirty-seven lots.

3. Assistance to other projects

Project Spotless (8)

All the cigarettes with treated tobaccos were made. The analyses are under way.

Project RCB

The smoke analyses of the Nino-RCB trials No. 7 and 8 with 5% of washed Nino stems plus the corresponding denitrated extract with (No. 7) and without (No. 8) Ninomass are available. There are no important differences between these samples.

Six samples having a different proportion of ingredients were received (lots No. 0118, 0120, 0121, 0122, 0124 and 0125). The analyses are under way.

Project Nino

The analyses of treated and untreated Burley strips are available.

The principal differences between washed and unwashed strips are that the washed strips contain a:

- lower TA level, consequently, lower SN delivery
- lower NO₃-N level, consequently, lower NO delivery (reduction of about 66% in mg/g of burnt tobacco)
- lower NH₃-N level
- lower tot-N level
- lower chloride content
- lower K content
- higher Ca content
- higher CO delivery per cigarette
- slightly higher DPM delivery per cigarette
- higher puff count (per g of burnt tobacco)
- higher HCN delivery per cigarette
- higher aldehydes delivery per cigarette
- better cylinder volume


L. Joseph

References:

1. Letter from LTR to Mr. H. Boeckle, dated April 8, 1980.
2. Letter from Mr. I.S. Ruziak to Mr. M. Hansen dated March 10, 1980.
3. Letter from L. Joseph to Mr. M. Hansen, dated May 8, 1980.
4. Letter from Mr. D. Polack to Mr. G. Karandjoulis, dated April 15, 1980.
5. Advice note of delivery from Richmond, dated April 18, 1980.
6. Telex from L. Joseph to Mr. Zevenhuizen, dated May 27, 1980.
7. Mr. Karle's report: "Chemical, physical and organoleptic examination of MD tobaccos..., of May 12, 1978", dated September 19, 1978.
8. Spotless monthly report, January 1980.

June 3, 1980
LIJ/noh

0000143534

Denitrification trial on LTR

<u>Filler analyses</u>		<u>Standard Lot 7198</u>	<u>Denitrated Lot 7195</u>
TA	(%):	0.56	0.56
RS	(%):	5.1	5.4
NO3-N	(%):	0.51	0.15
NH3-N	(%):	0.20	0.18
Tot-N	(%):	2.31	1.73
pH	:	7.3	7.4
Chloride	(%):	1.41	1.40
Ashes	(%):	22.0	20.2
K	(%):	4.61	3.79
Ca	(%):	4.24	4.34
Mg	(%):	0.46	0.42
C.V. at e.m.	(mL/10g):	33.0	34.7
Equilibrium moisture	(%):	11.9	11.9

Cigarette analyses

Tobacco weight	(mg):	1040	1022
Diameter	(mm):	8.00	8.02
RTD	(mm H2O):	112	117
Compressibility	(mm):	3.33 at 11.8% mc	3.01 at 11.3% mc
O.V.	(%):	11.9	11.6

Smoke analyses

CO	(mg/cig):	21.2	28.0
NO	(mg/cig):	0.58	0.21
DPM	(mg/cig):	9.0	10.4
SN	(mg/cig):	0.34	0.42
Puff count	(nbr/cig):	8.2	8.4
HCN	(µg/cig):	171	158
Aldehydes	(mg/cig):	1.56	1.59

June 3, 1980
LIJ/noh

0000143535

PROJECT TITLE : Cigarette and Smoke Analysis

Period Covered : May 1 - May 30, 1980

Report Written by : F. Senehi

Report Approved by : F. Lopes

ANALYTICAL SMOKING:

Collective Test ASFC, May 1980, Switzerland (Table 1)

The members of the ASFC Scientific Commission decided to carry out a test with four different kinds of cigarettes in order to determine the smoke yield results obtained by each laboratory, in comparison with those obtained by Romann and Ramuz (independent Swiss laboratories in Zurich and Lausanne), Ref. 1.

These comparative studies should also allow the manufacturers to determine their policy regarding the numbers to be printed on the packs.

A detailed study of the analytical results shows that the laboratories using the smoking machine Filtrona 302 (BAT, Romann and Ramuz) obtain tar values which are systematically lower than those of the other laboratories. Through a statistical study this difference has been found as being significant. It has to be mentioned that the cigarettes analysed during this collective test were taken out of the same sampling.

Data from the Official Swiss Laboratory of Dr. Romann (Table 2)

A table was issued, which shows the tar, smoke nicotine, carbon monoxide and nitrogen monoxide values of all PM brands (28 brands) analysed by Dr. Romann's laboratory, compared with the results obtained by QC PME (Ref. 2).

Dr. Romann found in the average:

- 11,5 % lower tar
- 8,3 % lower smoke nicotine
- 7,7 % lower CO
- 14,5 % lower NO

The lower smoke yield obtained by Dr. Romann, in comparison with values obtained by QC PME, is mainly due to the use of the Filtrona 302 smoking machine (8 ports) which gives systematically lower results than the Filtrona 300 smoking machine (20 ports).

Comparative tests between TNO - Laurens Belgium - Laurens Switzerland and QC PME (Table 3)

When we analysed in 1979 for the first time the brands ex-Ligget, sold in Switzerland and France, we found in certain brands rather high differences between the actual tar and nicotine values and the ones printed on the packs.

The laboratory of Laurens Belgium, which analysed these cigarettes sold in France and Switzerland, based the values printed on the packs on the actually determined results.

It was decided to carry out a collective test in order to determine the cause for these differences. These collective tests were also made by the Official smoke laboratory in the Netherlands (TNO) and the smoke laboratory of Laurens Switzerland (Ref. 3).

Comments

1. Compared with the results obtained by QC PME, TNO found in the average:

10,5 % lower Tar
23,6 % lower smoke nicotine

This difference in Tar is explained by the fact that TNO uses Filtrona 302 smoking machines (8 ports). The difference in smoke nicotine will be investigated.

2. Compared with the results obtained by QC PME, Laurens Belgium found in the average:

5,3 % lower Tar
6,6 % lower smoke nicotine

3. In the average and compared with the Filtrona 300 smoking machine, the Borgwaldt RM 20 CS with central 92 mm filter trap, which is used by Laurens, Belgium, gave a slightly lower tar value (not significant) of about 0.5 mg with a filter cigarette and a significantly lower tar value (about 2 mg) with a cigarette without filter. It is probable that the rotary circular head which moves every two seconds during one second and which causes more ventilation around the cigarette than a fixed head as on the Filtrona 300, explains the difference obtained with filter cigarettes. A study is under way to explain the differences obtained on cigarettes without filter.

Marlboro Long Size 79/F and Marlboro King size 84/F for Italy

The diluted version is produced now by all the production centers, except for the MLK 27 produced in Serrières

	Bologna		Eindh.-Bergen		Munich		Brussels	Serrières
	MLF 01	MLK 01	MLF 08	MLK 07	MLF 10	MLK 10	MLF 22	MLF 24
Dilution %	9	10	9	11	11	13	9	11
DPM (mg/cig)	18,7	17,7	18,1	17,2	18,0	17,4	18,6	17,9
SN (mg/cig)	1,30	1,21	1,11	1,18	1,22	1,20	1,23	1,17
Puff count	9,3	10,0	8,7	9,4	8,4	9,2	8,6	8,7
Tobacco weight	845	874	786	828	771	805	789	773
TA %	1,68	1,74	1,70	1,74	1,78	1,77	1,74	1,66

The DPM values of all these versions are very close to each other.

Product Reports

Product Reports were written on the following new or modified brands:

<u>Brand</u>	<u>Manufacturer</u>	<u>Country of sale</u>
Camel Mild 84/F (new brand)	Reynolds	West Germany
Petterdø's 84/F (new brand)	Tiedemanns	Norway
Commerce lights 67/F (new brand)	Swedish Tobacco	Sweden
Camel Mild 79/F (new brand)	Reynolds	Switzerland
Marocaine Extra 79/F (new brand)	B.A.T.	Switzerland
Gallaher lights 84/F (Trade Mark Protection)	Gallaher	United Kingdom
Winston lights 84/F (Trade Mark Protection)	Gallaher	United Kingdom

QC FINISHED PRODUCTS

F. Senehi
F. Senehi

REFERENCES:

- 1) Letter dd. 05-07-1980 from C. Jeanneret: Procès verbal de la séance de la Commission Scientifique de l'ASFC du 5 mai 1980 à Fribourg
- 2) Letter dd. 05-27-1980 from F. Senehi
- 3) Letter dd. 05-30-1980 from F. Senehi to Mr. J.B. Boder

04-06-1980 SEF/edk

Brand Printed val. (mg) Manufacturer	CONDENSAT (TAR mg/cig)				NICOTINE (SN mg/cig)			
	Marlboro 16	Mary Long 14	Stella Super 11	Select No. 2 4	Marlboro 1.2	Mary Long 1.0	Stella Super 1.0	Select No. 0.4
FTR	16.0	14.8	11.3	4.1	1.17	1.04	0.88	0.38
Reynolds	16.1	15.5	11.7	3.8	1.06	0.96	0.86	0.33
Rinsoz & Ormond	16.1	14.5	11.9	3.9	1.07	0.90	0.76	0.32
Laurens	16.1	14.9	11.5	4.1	1.11	0.98	0.82	0.29
Burrus	15.9	14.6	11.3	3.8	1.13	0.97	0.88	0.35
BAT	14.8	14.4	11.1	3.4	0.99	0.95	0.78	0.28
Romann	14.7	14.1	10.1	3.6	1.13	1.03	0.82	0.36
Ramuz	15.5	14.2	10.7	3.3	1.12	0.98	0.87	0.30
AVERAGE :	15.7 \pm 0.6	14.6 \pm 0.5	11.2 \pm 0.6	3.8 \pm 0.3	1.10 \pm 0.06	0.98 \pm 0.04	0.83 \pm 0.05	0.33 \pm 0.04
AVER. FILTRONA 302:	15.0 \pm 0.4	14.2 \pm 0.2	10.6 \pm 0.5	3.4 \pm 0.2	1.08 \pm 0.08	0.99 \pm 0.04	0.82 \pm 0.05	0.31 \pm 0.04
AVERAGE OTHERS :	16.0 \pm 0.1	14.9 \pm 0.4	11.5 \pm 0.3	3.9 \pm 0.2	1.11 \pm 0.04	0.97 \pm 0.05	0.84 \pm 0.05	0.33 \pm 0.03
DEVIATION FOR FILTRONA 302: *	- 1.0	- 0.7	- 0.9	- 0.5	(- 0.03)	(+ 0.02)	(- 0.02)	(- 0.02)

NOTE; The analyses were made on a common sampling.

* Deviation in mg of the Filtrona 302 in comparison with the other smoking machines.

0000143539

COMPARATIVE RESULTS BETWEEN THE OFFICIAL SWISS LABORATORY OF DR. DOMANN AND QC P/E

BRANDS	TAR (mg/cig)			S N (mg/cig)			CO (mg/cig)		NO (mg/cig)	
	DOMANN	QC P/E	PRINTED VALUES	DOMANN	QC P/E	PRINTED VALUES	DOMANN	QC P/E	DOMANN	QC P/E
ARLETTE	13,0	14,5	14	0,70	0,85	0,8	17,8	18,9	0,34	0,35
BASTUS	14,0	16,3	17	0,70	0,92	1,1	14,4	15,7	0,29	0,40
BRUNETTE CARREE / PLATE	17,8/17,7	20,2	23	1,08/1,09	1,25	1,3	13,5/13,9	15,1	0,22/0,21	0,31
BRUNETTE DOUBLE	13,1	15,4	15	0,87	1,03	1,0	14,7	17,1	0,25	0,29
BRUNETTE EXTRA MOU / BOX	5,2/5,3	6,2	7	0,38/0,38	0,46	0,6	9,5/8,9	9,4	0,18/0,16	0,19
BRUNETTE FILTRE	15,5	15,8	16	0,92	1,05	1,1	15,1	17,0	0,27	0,28
CHAMPION	13,7	15,7	15	1,24	1,35	1,4	14,0	13,8	0,11	0,14
DIANA KING SIZE	13,6	14,7	15	0,85	0,92	1,0	17,0	16,4	0,20	0,23
FLINT BOX	6,1	7,6	7	0,41	0,55	0,6	9,0	10,5	0,13	0,15
FLINT KING SIZE	6,0	7,4	7	0,45	0,51	0,6	9,2	10,6	0,14	0,16
FLINT ULTRA	1,0	1,3	1	0,10	0,13	0,1	3,0	4,2	0,06	0,09
MARLBORO BOX	13,8	16,0	16	1,10	1,16	1,2	14,0	16,4	0,21	0,27
MARLBORO 100'S RED BOX	13,3	16,1	17	1,14	1,24	1,2	14,0	15,9	0,24	0,28
MARLBORO KING SIZE	12,9	15,0	16	1,06	1,13	1,2	13,4	15,8	0,22	0,27
MARLBORO GOLD	7,8	8,9	9	0,68	0,74	0,8	10,8	11,3	0,19	0,21
MILLA	15,7	17,8	17	0,88	0,95	0,9	14,5	15,8	0,08	0,10
MS KING SIZE	15,0	15,8	18	1,05	1,07	1,2	16,3	16,2	0,31	0,32
MERCEDES KING SIZE	15,8	17,5	16	0,97	1,01	1,1	18,6	18,4	0,19	0,21
MULTIFILTER 100'S	11,6	13,2	13	0,98	1,00	1,0	12,7	14,4	0,18	0,20
MULTIFILTER KING SIZE	11,0	13,0	12	0,90	0,98	0,9	13,1	15,5	0,17	0,21
MURATTI AMBASSADOR BOX	10,8	12,4	12	0,87	0,91	0,9	11,8	14,6	0,17	0,20
MURATTI 2000	5,1	6,8	7	0,47	0,56	0,6	8,2	9,9	0,10	0,13
MURATTI 2000 EXTRA LONGS BOX	7,4	8,5	9	0,61	0,69	0,8	10,1	10,4	0,12	0,14
MURATTI AMBASSADOR EXTRA MILD K.S.	5,3	5,5	5	0,42	0,43	0,4	10,6	10,0	0,14	0,13
MURATTI AMBASSADOR KING SIZE	11,4	13,2	12	0,87	0,94	0,9	12,8	13,9	0,17	0,19
NORTH POLE	14,2	15,1	14	0,94	0,93	0,9	14,6	14,3	0,20	0,25
PHILIP MORRIS INTERNATIONAL	15,3	17,4	17	1,12	1,16	1,1	17,7	18,1	0,21	0,24
PHILIP MORRIS KING SIZE NF	22,8	23,8	23	1,66	1,64	1,5	13,2	14,4	0,18	0,23
GENERAL AVERAGE	11,73	13,25	13,2	0,837	0,913	0,94	12,99	14,07	0,188	0,220
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

The analyses were taken at Onnens on March 19, 1990

0000143540

	T A R			Deviation in % *		Smoke Nicotine			Deviation in % *	
	QC PME	L.BE	TNO	L.BE	TNO	QC PME	L. BE	TNO	L. BE	TNO
Caballero 70/NF	22.0	20.6	19.1			1.95	1.55	1.37		
Chesterfield 84/F	15.1	15.2	13.6			1.30	1.17	1.12		
Tivoli Light 84/F	5.7	5.9	5.7			0.44	0.36	0.33		
\bar{X}	14.3	13.9	12.8	- 2.8	- 10.5	1.23	1.03	0.94	-16.3**	-23.6

COMPARATIVE TESTS BETWEEN LAURENS CH - LAURENS BE - QC PME

	T A R			Deviation in % *		Smoke Nicotine			Deviation in % *	
	QC PME	L.BE	L.CH	L.BE	L.CH	QC PME	L.BE	L.CH	L.BE	L.CH
Chesterfield 70/NF	22.6	20.5	21.4			1.73	1.73	1.69		
Chesterfield 84/F	17.7	16.8	16.7			1.36	1.34	1.37		
job bleu 80/F	14.4	13.0	13.9			1.00	0.91	0.94		
\bar{X}	18.2	16.8	17.3	-7.7	-5.0	1.36	1.33	1.33	-2.2	-2.2

* = Deviation in % in comparison to QC PME
 TNO = Official smoke laboratory in the Netherlands
 L.BE = Laurens Belgium
 L.CH = Laurens Switzerland

30.05.80 SEF/edk

QC PME : Filtrona 300 smoking machine
 TNO : Filtrona 302 smoking machine
 L.BE and : Borgwaldt smoking machine RM 20 CS
 L.CH : with central 92 mm filter trap
 ** : 11 % , not considering the Caballero 70/NF

0000143541

PROJECT TITLE : Additives and Analytical Services
Period Covered : April 22 - May 27, 1980
Report Written by : A. Widmer
Report Approved by : F. Lopes

TRIALS WITH NEW SUPPLIERS OF TOBACCO ADDITIVES

- Ethanol (REGIE FEDERALE DES ALCOOLS, Bern/yellow sheet 5631, 5000 l)
As a consequence of a change in the storage system of ethanol, the product will be supplied in cisterns.
The analytical results of the first shipment correspond completely to our specifications.
- Honey (USEGO, Olten; "ex YUCATAN" / yellow sheet 5609, 295 kg)
Laboratory: The sample is within specifications.
Panel B: Not accepted because of a significant difference between the standard and the test-cigarettes (MLF-CH).
Concluded on May 12, 1980.
- Inverted sugar (ex DEVOLDER, Bruxelles) - Ref. 1
The content of inverted sugar and total sugar is too low.
- Propylene glycol (IMPAG, Zürich; "ex BAYER" / yellow sheet 5599/0.5 kg)
The sample corresponds to our specifications. As this product has been considered not acceptable by Panel A (test-cigarettes: MLK-DB) one year ago, it is not planned to produce test-cigarettes for the moment.
- Raw cane sugar (ex MAURITIUS) - Ref. 2.
The test-cigarettes (MLB-DB) have not been accepted by Panel A because of a significant difference to the standard.

QUALITY CONTROL OF TOBACCO ADDITIVES

- Cocoa shells - Ref. 3
A sieve with an aperture of 2.5 mm is mounted at the entry of the mill. This is in order to avoid the blocking of the mill by the too high fat content of the primary material. All material passing this sieve is considered as waste and returned to the supplier. Today, in some cases up to 30 % of the raw material passes the sieve. Analyses on the waste have been carried out in order to improve the yield of the final product.
The waste was sieved and divided into 6 fractions. On each fraction, water content, SiO_2 , ash- and fat-contents were determined. The results for water, SiO_2 and ashes did not show significant differences. On the other hand, the fat-content depends on the granulation.

Fraction	Granulation (mm)	fat (%)
1	2.5 - 2.0	n.d.
2	> 1.19	3.3
3	> 0.595	4.7
4	> 0.42	6.5
5	> 0.30	9.2
6	< 0.30	11.4
final product		3.1

On the basis of these results we suggested to make a trial with a sieve of an aperture of 0.6 mm. If there are no difficulties on the technical level, this would permit the recovery of about 50 % of the waste.

QUALITY CONTROL OF AFTER CUTTING SOLUTIONS

- ROK-AC (PMH) - Ref. 4

On request of the purchasing department, a stock of ROK-AC, produced in PMH, has been examined. No differences to the standard have been detected as regards analytical data (density, refraction, water- and ethanol-content), appearance and odour.

TRIALS WITH NEW SUPPLIERS OF GLUES

- Glue for cigarette-seam (HENKEL CHEMIE G.m.b.H., Pratteln; "SPA 7636 x 3" / yellow sheet 5608, 5 kg)

For this glue, which in principle is not in accordance with the German legislation, a special permission for its usage has been granted until July 31, 1981.

Machineability: The glue has a better adhesiveness than "Lesso 1487 x 3" and can be applied at ambient temperature.

The test-cigarettes (MLF-CH) have been accepted by Panels A and B.

200 kg of this glue have been ordered for a long term test.

- Glue for tipping paper (LAESSER AG, Erlinsbach)

Two types of modified glues for porous paper have been proposed:

- "Lesso 1186/10 A" (yellow sheet 5536, 1 kg)
- "Lesso 1186/10 B" (yellow sheet 5537, 1 kg)

Machineability: No significant improvement has been noted compared with the standard glue. Further trials are not planned.

- Glue for packing machine (LAESSER AG, Erlinsbach)

Three types of modified glue have been proposed:

- "Lesso 5012" (yellow sheet 5685/200 kg)
- "Lesso 5014/41" (yellow sheet 5684/200 kg)
- "Lesso 5021/3" (yellow sheet 5682/200 kg)

Machineability: The three types gave better results than the standard glue. "Lesso 5021/3" gave the best results of the three types. 500 kg of this glue have been ordered for a second trial.

- Glue for packing machine (LAESSER AG, Erlinsbach; "Lesso 1476"/yellow sheet 5607, 50 kg) - Ref. 5.

The glue, foreseen for the group 19 MAK didn't give better results than the standard. Further trials are not planned.

TOBACCO

- Storage of tobacco (Project ETNA) - Ref. 6.

A trial was carried out in order to determine the influence of packing material (single cardboard boxes or plastic bags in cardboard boxes) on the o.v. - content of the tobacco depending on the storage time. 100 kg tobacco with 19 % oven volatiles were filled into three boxes of each type. The oven volatiles were measured after one day and four days. The trial showed two essential points:

- 1) The moisture increases on the upper parts of the stocked tobacco (difference between the upper and lower layer in plastic bags: 0.6 % after four days).
- 2) The moisture is maintained in the boxes with plastic bags, whereas in the cardboard boxes there is an evaporation of water at the surface which results in a loss of moisture in the upper layer of 0.8 % after one day and 1.9 % after four days.

On the basis of these results, we recommended the use of plastic bags in cardboard boxes.

PRODUCT QUALITY

- Mentholated cigarettes (NIGERIA) - Ref. 7.

The following results have been found:

<u>Menthol</u>		<u>TARGET</u>	<u>GREEN SPOT</u>
mg/cig)	:	2.46	1.98
mg/cig in the smoke	:	0.52	0.46
transfer to smoke (%)	:	21	23
μ g/puff	:	58	53

We noted that the results for the brand "GREEN SPOT" are completely different from those of the first analyses (January 1980). In order to be sure of the applied menthol quantity and to get an idea about the quality of application, we will make menthol analyses on cigarettes taken according to our proposed sampling plan.

- Determination of sugars in MER (PMG) and MLF (PMH) - Ref. 8

Fructose, glucose and saccharose have been determined by HPLC on different cigarette productions as well as in the basic tobacco blend. The following results have been found:

MLF (PMH)

		cigarette (average of 3 prod.)	tobacco (cut filler) (average of 7 prod.)	difference cigarette- tobacco *
Fructose	(% d.w.) :	3.6	3.0	+ 0.6
Glucose	(") :	3.3	2.3	+ 1.0
Invert sugar	(") :	6.9	5.3	+ 1.6
Saccharose	(") :	2.4	0.8	+ 1.6
Total sugar	(") :	9.3	6.1	+ 3.2

MER (PMG)

		cigarette (average of 6 prod.)	tobacco (average of 6 prod.)	difference cigarette- tobacco
Fructose	(% d.w.) :	2.9	2.6	+ 0.3
Glucose	(") :	2.3	2.0	+ 0.3
Invert sugar	(") :	5.2	4.6	+ 0.6
Saccharose	(") :	3.6	0.9	+ 2.7
Total sugar	(") :	8.8	5.5	+ 3.3

Compared with the first analyses in March 79, the content of fructose, glucose and total sugar is slightly lower in both brands, whereas the content of saccharose is slightly higher.

* The difference is due to the added sugar (which is not recovered entirely).

PROJECT TITLE : Additives and Analytical Services.

SERVICES FOR OTHER GROUPS

- Analyses for Mr. F. Moser

Total nitrogen, Mg, Ca, K in tobacco (9 samples)

- Analyses for Mr. P. Ghiste

Chloride in extracts (13 samples)

QC ANALYTICAL SERVICES

A. Widmer

REFERENCES

- 1) Letter from A. Widmer to Mr. W. Tessendorf dd. May 5, 1980
- 2) Letter from A. Widmer to Mr. W. Tessendorf dd. May 5, 1980
- 3) Letter from A. Widmer to Mr. M. Stauffer dd. May 23, 1980
- 4) Letter from A. Widmer to Mr. R. Froidevaux dd. April 29, 1980
- 5) Monthly report A. Widmer February 1980
- 6) Report A. Schwarb dd. May 5, 1980
Letter from A. Widmer to Mr. C. Renaudin dd. May 5, 1980
- 7) Letter from A. Widmer to Mr. D. Polack dd. April 29, 1980
Monthly report A. Widmer January 1980
- 8) Report A. Widmer dd. May 21, 1980
Monthly report A. Widmer April 1979

03-06-80 ALW/edk

0000143546

PROJECT TITLE : Material testing
Period Covered : May 1 - May 31, 1980
Report Written by : P. Balliger
Report Approved by : F. Lopes

POROUS PLUG WRAP

29 HP 40 Miquel y Costas

In order to find an alternative porous plug wrap to our standard quality FU POV 40L, MLF-CH were produced with the above mentioned quality submitted by Miquel y Costas.

According to the lab results, this material showed an air permeability slightly below our present specification. On the other hand, this particularity affected significantly the smoking deliveries on the finished product. Based on these considerations, the trial has been cancelled.

CIGARETTE PAPER

225 A verge MAUDUIT

In order to find an alternative cigarette paper to the Schoeller & Hoesch Pela 54 M standard quality for the production of diluted versions of MAA and MPH, the above mentioned paper has been taken into consideration.

Trials carried out on the diluted MAA gave satisfactory smoke delivery figures and the cigarettes were preliminarily approved taste-wise by the smoking panel B.

Later on, these cigarettes will be submitted to the smoking panel A for a final decision on taste evaluation.

TIPPING PAPER

PMF Z 3/60 EPZ mglt	Enterlein
PMF Z 3/40 EPZ mglt	Enterlein
PMF Z 3/60 EPZ sat.	Enterlein
PMF Z 3/40 EPZ sat.	Enterlein

Further to a previous trial, Enterlein was requested to submit new samples (mentioned above) with different levels of roughness and porosity, in order to select a quality suitable for the MLF-CH objective.

Based on an analytical investigation carried out on cigarettes MLF-CH, produced with these different materials, only the tipping paper Z 3/60 EPZ sat. gave acceptable results.

Consequently, the cigarettes manufactured with Z 3/60 EPZ sat. will be submitted to the smoking panel for taste evaluation.

PROJECT TITLE : Material testing

VISIT TO AFFILIATES

May 20 - 22, 1980: PMG - Munich

- Madeco situation
- Incoming control situation

May 30, 1980 : Weltab, Belgium

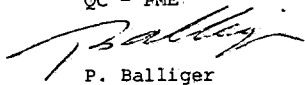
- Factory's visit
- Incoming control situation

VISIT TO SUPPLIER

May 28 - 29, 1980: Amcel, Belgium

- Amcel seminar
- Factory's visit

QC - PME


P. Balliger

05-06-80 PBA/edk

0000143548

PROJECT TITLE : SPECIFICATIONS AND PROCESS ASSURANCE

Period Covered : 18.4. - 22.5.1980

Report Written By : C. Flury + T. Bel

Report Approved By: J.B. Boder

0. Specifications - General

- Updated specification guidelines for manufacturing specs and material specs have been sent to the QC managers for final check before distribution.
- A European product modification request has been issued regarding the standardization of the moisture of packed cigarettes.

1. Specifications Fabriques de Tabac Réunies SA

- New specs for processing (BM 002), cigarette making (BEP 01), and packing (BEP 001) have been established for project VOITTO, cigarette Belmont Nr 1, for sale in Finland. The specs have limited validity, for the production of this brand by the licensee ATO Finland is planned later on.
- Specs for cigarette making (MLB 01) and packing (MLB 036 and MLB 037) have been distributed for the production of Marlboro King Size in 20s hinge lid pack, for sale in Norway and Sweden.
The replacement of the 80 mm 10s packs (MLF 036 and MLF 037) by 85 mm hinge lid 10s packs (MLA 036 and MLA 037) is planned for September, 1980.
- Completely reviewed specs have been established for project Everest II, i.e. the re-engineered cigarettes FLI Flint and FLK Flint Box King Size.
- The after-cutting solution has been cancelled on blend NPF North Pole. The filter length has been increased from 18 to 20 mm.

2. Specifications Intertaba S.p.A. Zola Predosa

- The RTD of the filter MAE-120 34.7305 has been brought to the standard value of 480 mm WG (previously 450).

3. Specifications PM Holland

- Complete manufacturing specs have been issued for the production of the UK Marlboro MLB 154.
- In addition to Eindhoven, the Bergen oZ plant will also produce Marlboro King Size MLK for sale in Italy and France.

4. Specifications PM Germany

5. Specifications Weltpac SA Bruxelles

- Cigarette making and packing specs have been issued for the production of MER Merit Filter cigarettes, for sale in Italy.

6. Specifications PM London

7. Specifications Licensees

- Bulgaria:
Provisional processing specs have been established for the Marlboro blend, planned to be processed in Stara Zagora. The cigarettes are produced at 60 km distance, in Plovdiv.
- Italy:
Filters with a diameter of 7,88 instead of 7,90 mm are now supplied to MONITAL.
- Finland:
After the first production, the cigarette making specs for Belmont Extra Mild BEO OL have been adapted.
- DDR:
The Nordhausen spec file, for the production of MLG Marlboro 100s Red have been completely reviewed.

11.4 RTDs and Dilution

An inventory of the results of the diluted and semi-diluted MLF Marlboros during the last 15 months is being set up, on PME level.

11.5 Foil Mentholating

Two PME methods "Process Assurance" will be distributed during the week of May 26th, 1980:

- | | |
|---|--------|
| - Mentholating of inner aluminium foil | No 715 |
| - Storage and use of mentholated alu foil | No 716 |

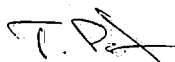
11.6 Burley Treatment

After receipt of the information outstanding from PMH Bergen op Zoom, and following the visit to PMG Berlin (1.-4.6.1980), the final report on this subject will be written and distributed.

11.7 Kitchen and Pre- and After-Cutting Solutions

The process study has been concluded for FTR, WELTAB, and PMH.

The final report will be written after the visits to PMG Berlin and PMG Munich (beginning June and beginning July, 1980).


T. Bel


C. Flury

8. Material Specifications
9. PME Standard Recipes
10. Specifications on EDP

11. Process Assurance

11.1 AccuRay

The documents relating to the discussions of AccuRay limits and checks, during the QC PME meeting of April, will be distributed shortly. They will have provisional character. In fact, following the meeting, new proposals have been presented by the FTR production management on the one hand, and by several QC managers on the other hand. These proposals will be studied, final solutions will be found by the AccuRay specialists and new procedures issued.

11.2 Non-Tobacco Material Weights in Filter and Cigarette Making Specifications

A PME method "Process Assurance" for the determination of the glue weight on the cigarette seam has been distributed to the QC managers and the trials are presently run in the different production centres..

A preliminary test for the determination of the glue weight on the tipping paper and in the filter will be made in FTR, before the establishment of the corresponding PME Methods.

11.3 Filter and Cigarette Diameter

A PME product modification approval from Product Coordination and from the head of PME QA & Development is available for the standardisation of the cigarette diameter to 7,95 instead of 7,975 mm. The filter diameter is planned to be reduced to 7,86 mm for white and combined filters and to 7,80 mm for semi-manufactured filters.

This modification will now have to be handled on European level. The office Specs/Process Assurance will contact PME Product Coordination to set up a programme.

PROJECT TITLE : Physical Testing Methods
Period Covered : May 1 - May 31, 1980
Report Written by : T. Piko
Report Approved by : F. Lopes

AUTOMATION OF THE SMOKE LABORATORY

The study made by RCB Electronic was distributed
(ref.: minutes May 13, 1980).

We also discussed this matter with IBM who are studying the possibility
of applying the IBM system 8100 with industrial terminals IBM 3640.
We are expecting their offer by the end of June 1980.

PRESSURE DROP AND DILUTION INSTRUMENT EX RICHMOND

The concept of connecting a statistical calculator to the PDI/DDI
has been agreed upon. RCB Electronic will do this job until the end of
July 1980.

PHYSICAL TESTS

The results of the physical tests on reference cigarettes for February,
March and April have been calculated and distributed to the participants
(see enclosed table)
The filters for the collective tests were sent to the participants.

QC METHODS
T. Piko
T. Piko

05-06-1980 THP/edk

Month:		1979					1980						\bar{x}^1	
		A	S	O	N	D	J	F	M	A	M	J		J
PM-BERLIN														
C.C.	\bar{x}	3.29	3.14	2.96	3.01	3.29	3.20	2.99	3.06	3.20				3.08
	s	0.07	0.07	0.29	0.25	0.11	0.32	0.31	0.16	0.13				
O.V.	\bar{x}	11.3	11.2	11.2	11.2	11.2	11.4	11.3	11.2	11.4				11.3
	s	0.43	0.17	0.10	0.39	0.10	0.18	0.13	0.38	0.21				
RTD	\bar{x}	92.5	90.8	99.0	90.6	91.4	95.0	90.7	101.3	91.9				94.6
	s	2.11	4.27	9.45	0.62	1.64	8.95	2.08	5.89	0.97				
DIL.	\bar{x}	18.8	17.5	18.6	18.8	18.5	19.2	18.7	18.7	18.8				18.7
	s	0.29	1.56	0.35	0.26	0.29	0.46	0.37	0.19	0.13				
PM-MUNICH														
C.C.	\bar{x}	----	2.76	2.81	3.20	3.07	3.25	3.17	3.18	3.15				3.17
	s	----	0.30	0.19	0.17	0.06	0.21	0.09	0.13	0.12				
O.V.	\bar{x}	----	11.1	11.4	10.8	11.0	11.2	11.0	10.87	10.7				10.9
	s	----	0.26	0.29	0.29	0.30	0.31	0.41	0.13	0.41				
RTD	\bar{x}	----	92.6	92.4	91.6	91.3	92.7	91.6	92.8	92.5				92.3
	s	----	0.28	1.01	1.51	2.86	0.93	0.76	0.30	0.60				
DIL.	\bar{x}	----	19.6	20.1	20.0	20.7	20.2	19.8	20.0	20.1				20.0
	s	----	0.33	1.24	0.10	1.48	0.37	0.40	0.29	0.06				
WELTAB														
C.C.	\bar{x}	----	3.25	3.31	3.11	----	3.15	3.07	3.21	3.23				3.17
	s	----	0.09	0.05	0.08	----	0.04	0.35	0.09	0.03				
O.V.	\bar{x}	----	11.0	11.2	11.1	----	11.1	11.5	11.8	11.3				11.5
	s	----	0.29	0.05	0.17	----	0.15	0.68	0.44	0.38				
RTD	\bar{x}	----	87.8	88.5	86.7	----	86.0	85.4	85.6	87.6				86.2
	s	----	0.93	2.70	0.72	----	3.17	2.19	1.25	3.56				
DIL.	\bar{x}	----	20.3	19.6	19.0	----	19.7	19.1	18.2	18.4				18.6
	s	----	1.15	0.47	0.46	----	0.30	0.51	0.56	0.52				
PM-HOLLAND														
C.C.	\bar{x}	----	3.42	3.14	3.42	3.44	3.14	3.04	3.14	3.01				3.06
	s	----	0.23	0.24	0.23	0.14	0.17	0.12	0.14	0.31				
O.V.	\bar{x}	----	11.2	10.7	11.2	11.2	11.1	10.6	11.4	10.8				10.9
	s	----	0.36	0.54	0.45	0.46	0.62	0.28	0.16	0.82				
RTD	\bar{x}	----	91.3	91.0	90.3	90.0	88.7	89.0	88.5	88.0				88.5
	s	----	1.50	1.63	2.63	3.16	3.50	0.82	1.73	1.15				
DIL.	\bar{x}	----	18.0	18.5	18.4	18.4	17.7	18.0	18.5	19.0				18.5
	s	----	0.58	0.83	0.47	0.85	0.94	0.34	0.47	0.34				
QC-FTP														
C.C.	\bar{x}	3.22	3.23	3.26	3.26	3.37	3.21	3.33	3.47	3.26				3.35
	s	0.16	0.27	0.05	0.16	0.10	0.16	0.18	0.14	0.16				
O.V.	\bar{x}	11.2	10.9	11.5	11.3	11.3	11.4	11.7	12.2	11.5				11.8
	s	0.35	0.78	0.30	0.41	0.16	0.12	0.32	0.20	0.19				
RTD	\bar{x}	87.1	89.8	86.8	88.9	84.3	84.8	84.4	84.9	86.6				85.3
	s	3.48	1.01	3.19	2.81	4.17	2.54	2.99	5.24	4.32				
DIL.	\bar{x}	17.2	18.7	17.5	18.7	18.7	18.9	18.3	16.8	18.9				18.0
	s	0.41	0.91	1.26	0.75	0.96	1.06	2.46	1.79	0.58				
QC-PHE														
C.C.	\bar{x}	3.37	3.41	3.58	3.48	3.58	3.56	3.52	3.45	3.11				3.36
	s	0.23	0.11	0.13	0.14	0.14	0.12	0.19	0.08	0.08				
O.V.	\bar{x}	11.5	11.3	11.6	11.5	11.7	11.7	11.9	11.8	11.3				11.7
	s	0.62	0.31	0.42	0.29	0.30	0.19	0.36	0.31	0.20				
RTD	\bar{x}	84.0	82.0	83.8	84.3	90.5	88.8	88.8	89.5	91.0				99.3
	s	1.83	1.63	1.26	2.22	1.00	1.26	0.96	1.73	1.41				
DIL.	\bar{x}	19.0	19.2	19.5	18.8	20.3	19.3	19.0	19.5	19.0				19.2
	s	0.82	0.50	1.00	0.96	0.50	0.50	0.00	0.58	1.41				

 \bar{X}^1 : Average of the last three months.

C.C. : Cigarette Compressibility - 60 -

0000143554

PROJECT TITLE : PATENTS
PERIOD COVERED : May 1980
WRITTEN BY : J.C. Mandiratta

INTERNATIONAL PATENT DOCUMENTATION CENTRE, VIENNA

A direct link has been established between the International Patent Documentation Centre (Inpadoc) and our APL Terminal for making search on-line on "Patent Families". Two examples of such search have been made with positive results. The patent office in Richmond has been informed to make use of this service through us in future.

CONTINUOUS METHOD OF DENITRATING TOBACCO EXTRACTS (NINO CANDIDA)

Philip Morris Europe and the United States Foreign Patent Subcommittee have decided to file above mentioned application in Argentina, Australia, Belgium, Brazil, Canada, Equador, France, Italy, West Germany, Great Britain, Mexico, the Netherlands, Nigeria, the Philippines, Switzerland and Venezuela.

The United States patent application is finalised and sent back to Richmond for filing in the United States. The European patent application will be filed, designating Belgium, France, Italy, West Germany, Great Britain, the Netherlands and Switzerland.

LIGGETT & MYERS PATENT APPLICATION
USSR APPLICATION NO 2457103/13
TITLE: CIGARETTE FILTER

Mr. George Brandt of Watson, Leavenworth, Kelton & Taggart (WLKT) has informed us that they are having difficulties in following the above mentioned application in the USSR. We have decided to abandon this application and advised WLKT accordingly.

PHILIP MORRIS EUROPE PATENT COMMITTEE MEETING

The third meeting of the PME Patent Committee was held on 21st May 1980.



J.C. Mandiratta

0000143555

T S. OSDENE

JUN 30 1980

0000143556